

405 Clock, switcheotomy

Hands up all those who have a working and accurate original clock in their 2 litre Bristol? Yes, as I thought not many.... So as part of my ongoing 405 restoration it was time to address the clock. Although fine when new the fitted Smith's clock soon died, usually just after warranty expiry. The culprit was the switch that was used to give the balance wheel an electrical kick, it was a mechanical switch that sparked as it was driving an inductive load, the kicker coil. Various attempts have been made over the years including one that replaced the switch with a piece of tungsten carbide, that one lasted longer, but not forever.... Clocks4classics calculates that this mechanical switch operated 3 million times a week, what could go wrong?

So a recent internet search for clock fixes came up with an all electronic option from <http://www.clocks4classics.com> What this system does is to remove the mechanical switch and replace it with a photocell that looks at a printed reflective pattern on the balance wheel and kicks the coil electronically at the right moment, easy....

There are 2 installation options, diy or send it to clocks4classics, liking a challenge I went for the diy option, this is also somewhat cheaper. I've played with ever smaller electronics all my life so this really didn't look too hard, others may care to read the online instructions first to see what you're in for. The instructions on their website are excellent, well illustrated and annotated. I would add the following to their tool list though:

- 6BA open ended spanner to undo the posts
- Lens
- Clamp to hold mechanism while working on it
- Tray to hold all parts, line this with cooking foil for best static protection and clip a wrist strap to it.
- Clock oil – \$5 from Aliexpress including postage... <https://tinyurl.com/y9nwcxx3> Don't be tempted to use any oil other than clock oil, they go sticky, and then....
- Anti-static wrist strap \$1 from Aliexpress including postage <https://tinyurl.com/yc2dlubm>

Static. The instructions talk about static precautions, it's best to take note of these.

Soldering, none!

So it took me about 2 hours to take out the old and replace with new, then? Well I switched it on and only got a few mediocre shakes of the balance wheel, groan. The instructions provide a very comprehensive fault finding procedure, item 12 nailed it, I hadn't oiled the balance staff's jewelled bearings... A quick mini drop of Chinese clock oil and away it went! As it was hard to get at the second jewel I skipped this and then felt guilty, but how to get at the inside bearing? An email to clocks4classics got an almost immediate reply from Mark Willows explaining this in detail. Don't worry about the slightly slow initial oscillations, within 30 seconds it's away. It evens ticks nicely!

All that then remained was to regulate it, my advice would be to do this before replacing the clock in the car, the adjustment screw is small and will be buried deep in the dashboard, do it now. I set up an old (fused!) sealed lead acid 12V battery, the flange of the clock housing is conveniently printed with minutes making this a lot easier. I made a temporary 'minute hand' from a piece of wire. Don't expect GPS levels of accuracy, this is fundamentally still a mechanical movement subject to variations in temperature, wear and phases of the moon...

So that's another job off the list, only 1,724 to go.....

Stuart 9/17

